Multi-temporal & multi-resolution satellite data for urban growth monitoring

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Managing change does not mean to controlling it, rather understanding it, adapting to it where necessary and guiding it when possible. Some driving forces play a key role to change the environment; e.g. economic, political and social, population and demographic, resources and environment, and science and technology etc.

In India, during last two decades due to rapid growth of population, large cities are in the state of turmoil due to lack of infrastructure facilities. For proper management of urban and peri-urban areas, accurate and updated land information is required. The availability of land resource is one of the most important components for sustainable development of cities. In the recent past transformation of land use in cities has undergone tremendous changes.

In the present study an attempt has been made to identify the growth of urban area through change detection techniques and analyse the driving forces of changes. Ranchi city is a capital of newly emerged state Jharkhand, India. Its population has grown from 1.06 lakh in 1951, 2.5 lakh in 1971 to 8.63 lakh in 2001. Simultaneously the land use change in the rate of 4.38 percent and the population grew 1,51,26 p/year since independence. The impact of such growth is seen in the change in urban land use of the town & its surrounding environment area.

Based on the multi-temporal and multi-resolution satellite data and existing map, the spatial and temporal changes has been detected and discusses. It is emphasized that new technologies need to be brought in the planning for better management of cities. The findings can become a model for the other cities.

Key words: Urbanization, Remote sensing, GIS, Change detection

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